

Appendix C

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Table A		Factorials
n		$n!$
0		1
1		1
2		2
3		6
4		24
5		120
6		720
7		5,040
8		40,320
9		362,880
10		3,628,800
11		39,916,800
12		479,001,600
13		6,227,020,800
14		87,178,291,200
15		1,307,674,368,000
16		20,922,789,888,000
17		355,687,428,096,000
18		6,402,373,705,728,000
19		121,645,100,408,832,000
20		2,432,902,008,176,640,000

Table B		The Binomial Distribution										
<i>n</i>	<i>x</i>	<i>p</i>										
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.95
2	0	0.902	0.810	0.640	0.490	0.360	0.250	0.160	0.090	0.040	0.010	0.002
	1	0.095	0.180	0.320	0.420	0.480	0.500	0.480	0.420	0.320	0.180	0.095
	2	0.002	0.010	0.040	0.090	0.160	0.250	0.360	0.490	0.640	0.810	0.902
3	0	0.857	0.729	0.512	0.343	0.216	0.125	0.064	0.027	0.008	0.001	
	1	0.135	0.243	0.384	0.441	0.432	0.375	0.288	0.189	0.096	0.027	0.007
	2	0.007	0.027	0.096	0.189	0.288	0.375	0.432	0.441	0.384	0.243	0.135
	3		0.001	0.008	0.027	0.064	0.125	0.216	0.343	0.512	0.729	0.857
4	0	0.815	0.656	0.410	0.240	0.130	0.062	0.026	0.008	0.002		
	1	0.171	0.292	0.410	0.412	0.346	0.250	0.154	0.076	0.026	0.004	
	2	0.014	0.049	0.154	0.265	0.346	0.375	0.346	0.265	0.154	0.049	0.014
	3		0.004	0.026	0.076	0.154	0.250	0.346	0.412	0.410	0.292	0.171
	4			0.002	0.008	0.026	0.062	0.130	0.240	0.410	0.656	0.815
5	0	0.774	0.590	0.328	0.168	0.078	0.031	0.010	0.002			
	1	0.204	0.328	0.410	0.360	0.259	0.156	0.077	0.028	0.006		
	2	0.021	0.073	0.205	0.309	0.346	0.312	0.230	0.132	0.051	0.008	0.001
	3	0.001	0.008	0.051	0.132	0.230	0.312	0.346	0.309	0.205	0.073	0.021
	4			0.006	0.028	0.077	0.156	0.259	0.360	0.410	0.328	0.204
	5				0.002	0.010	0.031	0.078	0.168	0.328	0.590	0.774
6	0	0.735	0.531	0.262	0.118	0.047	0.016	0.004	0.001			
	1	0.232	0.354	0.393	0.303	0.187	0.094	0.037	0.010	0.002		
	2	0.031	0.098	0.246	0.324	0.311	0.234	0.138	0.060	0.015	0.001	
	3	0.002	0.015	0.082	0.185	0.276	0.312	0.276	0.185	0.082	0.015	0.002
	4		0.001	0.015	0.060	0.138	0.234	0.311	0.324	0.246	0.098	0.031
	5			0.002	0.010	0.037	0.094	0.187	0.303	0.393	0.354	0.232
	6				0.001	0.004	0.016	0.047	0.118	0.262	0.531	0.735
7	0	0.698	0.478	0.210	0.082	0.028	0.008	0.002				
	1	0.257	0.372	0.367	0.247	0.131	0.055	0.017	0.004			
	2	0.041	0.124	0.275	0.318	0.261	0.164	0.077	0.025	0.004		
	3	0.004	0.023	0.115	0.227	0.290	0.273	0.194	0.097	0.029	0.003	
	4		0.003	0.029	0.097	0.194	0.273	0.290	0.227	0.115	0.023	0.004
	5			0.004	0.025	0.077	0.164	0.261	0.318	0.275	0.124	0.041
	6				0.004	0.017	0.055	0.131	0.247	0.367	0.372	0.257
	7					0.002	0.008	0.028	0.082	0.210	0.478	0.698
8	0	0.663	0.430	0.168	0.058	0.017	0.004	0.001				
	1	0.279	0.383	0.336	0.198	0.090	0.031	0.008	0.001			
	2	0.051	0.149	0.294	0.296	0.209	0.109	0.041	0.010	0.001		
	3	0.005	0.033	0.147	0.254	0.279	0.219	0.124	0.047	0.009		
	4		0.005	0.046	0.136	0.232	0.273	0.232	0.136	0.046	0.005	
	5			0.009	0.047	0.124	0.219	0.279	0.254	0.147	0.033	0.005
	6			0.001	0.010	0.041	0.109	0.209	0.296	0.294	0.149	0.051
	7				0.001	0.008	0.031	0.090	0.198	0.336	0.383	0.279
	8					0.001	0.004	0.017	0.058	0.168	0.430	0.663

Table B		<i>(continued)</i>											
<i>n</i>	<i>x</i>	<i>p</i>											
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.95	
9	0	0.630	0.387	0.134	0.040	0.010	0.002						
	1	0.299	0.387	0.302	0.156	0.060	0.018	0.004					
	2	0.063	0.172	0.302	0.267	0.161	0.070	0.021	0.004				
	3	0.008	0.045	0.176	0.267	0.251	0.164	0.074	0.021	0.003			
	4	0.001	0.007	0.066	0.172	0.251	0.246	0.167	0.074	0.017	0.001		
	5		0.001	0.017	0.074	0.167	0.246	0.251	0.172	0.066	0.007	0.001	
	6			0.003	0.021	0.074	0.164	0.251	0.267	0.176	0.045	0.008	
	7				0.004	0.021	0.070	0.161	0.267	0.302	0.172	0.063	
	8					0.004	0.018	0.060	0.156	0.302	0.387	0.299	
	9						0.002	0.010	0.040	0.134	0.387	0.630	
10	0	0.599	0.349	0.107	0.028	0.006	0.001						
	1	0.315	0.387	0.268	0.121	0.040	0.010	0.002					
	2	0.075	0.194	0.302	0.233	0.121	0.044	0.011	0.001				
	3	0.010	0.057	0.201	0.267	0.215	0.117	0.042	0.009	0.001			
	4	0.001	0.011	0.088	0.200	0.251	0.205	0.111	0.037	0.006			
	5		0.001	0.026	0.103	0.201	0.246	0.201	0.103	0.026	0.001		
	6			0.006	0.037	0.111	0.205	0.251	0.200	0.088	0.011	0.001	
	7			0.001	0.009	0.042	0.117	0.215	0.267	0.201	0.057	0.010	
	8				0.001	0.011	0.044	0.121	0.233	0.302	0.194	0.075	
	9					0.002	0.010	0.040	0.121	0.268	0.387	0.315	
	10						0.001	0.006	0.028	0.107	0.349	0.599	
11	0	0.569	0.314	0.086	0.020	0.004							
	1	0.329	0.384	0.236	0.093	0.027	0.005	0.001					
	2	0.087	0.213	0.295	0.200	0.089	0.027	0.005	0.001				
	3	0.014	0.071	0.221	0.257	0.177	0.081	0.023	0.004				
	4	0.001	0.016	0.111	0.220	0.236	0.161	0.070	0.017	0.002			
	5		0.002	0.039	0.132	0.221	0.226	0.147	0.057	0.010			
	6			0.010	0.057	0.147	0.226	0.221	0.132	0.039	0.002		
	7			0.002	0.017	0.070	0.161	0.236	0.220	0.111	0.016	0.001	
	8				0.004	0.023	0.081	0.177	0.257	0.221	0.071	0.014	
	9				0.001	0.005	0.027	0.089	0.200	0.295	0.213	0.087	
	10					0.001	0.005	0.027	0.093	0.236	0.384	0.329	
	11							0.004	0.020	0.086	0.314	0.569	
12	0	0.540	0.282	0.069	0.014	0.002							
	1	0.341	0.377	0.206	0.071	0.017	0.003						
	2	0.099	0.230	0.283	0.168	0.064	0.016	0.002					
	3	0.017	0.085	0.236	0.240	0.142	0.054	0.012	0.001				
	4	0.002	0.021	0.133	0.231	0.213	0.121	0.042	0.008	0.001			
	5		0.004	0.053	0.158	0.227	0.193	0.101	0.029	0.003			
	6			0.016	0.079	0.177	0.226	0.177	0.079	0.016			
	7			0.003	0.029	0.101	0.193	0.227	0.158	0.053	0.004		
	8			0.001	0.008	0.042	0.121	0.213	0.231	0.133	0.021	0.002	
	9				0.001	0.012	0.054	0.142	0.240	0.236	0.085	0.017	
	10					0.002	0.016	0.064	0.168	0.283	0.230	0.099	
	11						0.003	0.017	0.071	0.206	0.377	0.341	
	12							0.002	0.014	0.069	0.282	0.540	

Table B		<i>(continued)</i>											
<i>n</i>	<i>x</i>	<i>p</i>											
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.95	
13	0	0.513	0.254	0.055	0.010	0.001							
	1	0.351	0.367	0.179	0.054	0.011	0.002						
	2	0.111	0.245	0.268	0.139	0.045	0.010	0.001					
	3	0.021	0.100	0.246	0.218	0.111	0.035	0.006	0.001				
	4	0.003	0.028	0.154	0.234	0.184	0.087	0.024	0.003				
	5		0.006	0.069	0.180	0.221	0.157	0.066	0.014	0.001			
	6		0.001	0.023	0.103	0.197	0.209	0.131	0.044	0.006			
	7			0.006	0.044	0.131	0.209	0.197	0.103	0.023	0.001		
	8			0.001	0.014	0.066	0.157	0.221	0.180	0.069	0.006		
	9				0.003	0.024	0.087	0.184	0.234	0.154	0.028	0.003	
	10				0.001	0.006	0.035	0.111	0.218	0.246	0.100	0.021	
	11					0.001	0.010	0.045	0.139	0.268	0.245	0.111	
	12						0.002	0.011	0.054	0.179	0.367	0.351	
	13							0.001	0.010	0.055	0.254	0.513	
14	0	0.488	0.229	0.044	0.007	0.001							
	1	0.359	0.356	0.154	0.041	0.007	0.001						
	2	0.123	0.257	0.250	0.113	0.032	0.006	0.001					
	3	0.026	0.114	0.250	0.194	0.085	0.022	0.003					
	4	0.004	0.035	0.172	0.229	0.155	0.061	0.014	0.001				
	5		0.008	0.086	0.196	0.207	0.122	0.041	0.007				
	6		0.001	0.032	0.126	0.207	0.183	0.092	0.023	0.002			
	7			0.009	0.062	0.157	0.209	0.157	0.062	0.009			
	8			0.002	0.023	0.092	0.183	0.207	0.126	0.032	0.001		
	9				0.007	0.041	0.122	0.207	0.196	0.086	0.008		
	10				0.001	0.014	0.061	0.155	0.229	0.172	0.035	0.004	
	11					0.003	0.022	0.085	0.194	0.250	0.114	0.026	
	12					0.001	0.006	0.032	0.113	0.250	0.257	0.123	
	13						0.001	0.007	0.041	0.154	0.356	0.359	
	14							0.001	0.007	0.044	0.229	0.488	
15	0	0.463	0.206	0.035	0.005								
	1	0.366	0.343	0.132	0.031	0.005							
	2	0.135	0.267	0.231	0.092	0.022	0.003						
	3	0.031	0.129	0.250	0.170	0.063	0.014	0.002					
	4	0.005	0.043	0.188	0.219	0.127	0.042	0.007	0.001				
	5	0.001	0.010	0.103	0.206	0.186	0.092	0.024	0.003				
	6		0.002	0.043	0.147	0.207	0.153	0.061	0.012	0.001			
	7			0.014	0.081	0.177	0.196	0.118	0.035	0.003			
	8			0.003	0.035	0.118	0.196	0.177	0.081	0.014			
	9			0.001	0.012	0.061	0.153	0.207	0.147	0.043	0.002		
	10				0.003	0.024	0.092	0.186	0.206	0.103	0.010	0.001	
	11				0.001	0.007	0.042	0.127	0.219	0.188	0.043	0.005	
	12					0.002	0.014	0.063	0.170	0.250	0.129	0.031	
	13						0.003	0.022	0.092	0.231	0.267	0.135	
	14							0.005	0.031	0.132	0.343	0.366	
	15								0.005	0.035	0.206	0.463	

Table B		<i>(continued)</i>												
<i>n</i>	<i>x</i>	<i>p</i>												
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.95		
16	0	0.440	0.185	0.028	0.003									
	1	0.371	0.329	0.113	0.023	0.003								
	2	0.146	0.275	0.211	0.073	0.015	0.002							
	3	0.036	0.142	0.246	0.146	0.047	0.009	0.001						
	4	0.006	0.051	0.200	0.204	0.101	0.028	0.004						
	5	0.001	0.014	0.120	0.210	0.162	0.067	0.014	0.001					
	6		0.003	0.055	0.165	0.198	0.122	0.039	0.006					
	7			0.020	0.101	0.189	0.175	0.084	0.019	0.001				
	8			0.006	0.049	0.142	0.196	0.142	0.049	0.006				
	9			0.001	0.019	0.084	0.175	0.189	0.101	0.020				
	10				0.006	0.039	0.122	0.198	0.165	0.055	0.003			
	11				0.001	0.014	0.067	0.162	0.210	0.120	0.014	0.001		
	12					0.004	0.028	0.101	0.204	0.200	0.051	0.006		
	13						0.001	0.009	0.047	0.146	0.246	0.142	0.036	
	14							0.002	0.015	0.073	0.211	0.275	0.146	
	15								0.003	0.023	0.113	0.329	0.371	
	16									0.003	0.028	0.185	0.440	
17	0	0.418	0.167	0.023	0.002									
	1	0.374	0.315	0.096	0.017	0.002								
	2	0.158	0.280	0.191	0.058	0.010	0.001							
	3	0.041	0.156	0.239	0.125	0.034	0.005							
	4	0.008	0.060	0.209	0.187	0.080	0.018	0.002						
	5	0.001	0.017	0.136	0.208	0.138	0.047	0.008	0.001					
	6		0.004	0.068	0.178	0.184	0.094	0.024	0.003					
	7		0.001	0.027	0.120	0.193	0.148	0.057	0.009					
	8			0.008	0.064	0.161	0.185	0.107	0.028	0.002				
	9			0.002	0.028	0.107	0.185	0.161	0.064	0.008				
	10				0.009	0.057	0.148	0.193	0.120	0.027	0.001			
	11				0.003	0.024	0.094	0.184	0.178	0.068	0.004			
	12				0.001	0.008	0.047	0.138	0.208	0.136	0.017	0.001		
	13					0.002	0.018	0.080	0.187	0.209	0.060	0.008		
	14						0.005	0.034	0.125	0.239	0.156	0.041		
	15						0.001	0.010	0.058	0.191	0.280	0.158		
	16							0.002	0.017	0.096	0.315	0.374		
	17								0.002	0.023	0.167	0.418		

Table B		<i>(continued)</i>												
<i>n</i>	<i>x</i>	<i>p</i>												
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.95		
18	0	0.397	0.150	0.018	0.002									
	1	0.376	0.300	0.081	0.013	0.001								
	2	0.168	0.284	0.172	0.046	0.007	0.001							
	3	0.047	0.168	0.230	0.105	0.025	0.003							
	4	0.009	0.070	0.215	0.168	0.061	0.012	0.001						
	5	0.001	0.022	0.151	0.202	0.115	0.033	0.004						
	6		0.005	0.082	0.187	0.166	0.071	0.015	0.001					
	7		0.001	0.035	0.138	0.189	0.121	0.037	0.005					
	8			0.012	0.081	0.173	0.167	0.077	0.015	0.001				
	9			0.003	0.039	0.128	0.185	0.128	0.039	0.003				
	10			0.001	0.015	0.077	0.167	0.173	0.081	0.012				
	11				0.005	0.037	0.121	0.189	0.138	0.035	0.001			
	12					0.001	0.015	0.071	0.166	0.187	0.082	0.005		
	13						0.004	0.033	0.115	0.202	0.151	0.022	0.001	
	14						0.001	0.012	0.061	0.168	0.215	0.070	0.009	
	15							0.003	0.025	0.105	0.230	0.168	0.047	
	16							0.001	0.007	0.046	0.172	0.284	0.168	
	17								0.001	0.013	0.081	0.300	0.376	
	18									0.002	0.018	0.150	0.397	
19	0	0.377	0.135	0.014	0.001									
	1	0.377	0.285	0.068	0.009	0.001								
	2	0.179	0.285	0.154	0.036	0.005								
	3	0.053	0.180	0.218	0.087	0.017	0.002							
	4	0.011	0.080	0.218	0.149	0.047	0.007	0.001						
	5	0.002	0.027	0.164	0.192	0.093	0.022	0.002						
	6		0.007	0.095	0.192	0.145	0.052	0.008	0.001					
	7		0.001	0.044	0.153	0.180	0.096	0.024	0.002					
	8			0.017	0.098	0.180	0.144	0.053	0.008					
	9			0.005	0.051	0.146	0.176	0.098	0.022	0.001				
	10			0.001	0.022	0.098	0.176	0.146	0.051	0.005				
	11				0.008	0.053	0.144	0.180	0.098	0.071				
	12					0.002	0.024	0.096	0.180	0.153	0.044	0.001		
	13					0.001	0.008	0.052	0.145	0.192	0.095	0.007		
	14						0.002	0.022	0.093	0.192	0.164	0.027	0.002	
	15						0.001	0.007	0.047	0.149	0.218	0.080	0.011	
	16							0.002	0.017	0.087	0.218	0.180	0.053	
	17								0.005	0.036	0.154	0.285	0.179	
	18								0.001	0.009	0.068	0.285	0.377	
	19									0.001	0.014	0.135	0.377	

Table B		<i>(concluded)</i>																			
<i>n</i>	<i>x</i>	<i>p</i>																			
		0.05	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	0.95									
20	0	0.358	0.122	0.012	0.001																
	1	0.377	0.270	0.058	0.007																
	2	0.189	0.285	0.137	0.028	0.003															
	3	0.060	0.190	0.205	0.072	0.012	0.001														
	4	0.013	0.090	0.218	0.130	0.035	0.005														
	5	0.002	0.032	0.175	0.179	0.075	0.015	0.001													
	6		0.009	0.109	0.192	0.124	0.037	0.005													
	7		0.002	0.055	0.164	0.166	0.074	0.015	0.001												
	8			0.022	0.114	0.180	0.120	0.035	0.004												
	9			0.007	0.065	0.160	0.160	0.071	0.012												
	10			0.002	0.031	0.117	0.176	0.117	0.031	0.002											
	11				0.012	0.071	0.160	0.160	0.065	0.007											
	12				0.004	0.035	0.120	0.180	0.114	0.022											
	13				0.001	0.015	0.074	0.166	0.164	0.055	0.002										
	14					0.005	0.037	0.124	0.192	0.109	0.009										
	15					0.001	0.015	0.075	0.179	0.175	0.032	0.002									
	16						0.005	0.035	0.130	0.218	0.090	0.013									
	17						0.001	0.012	0.072	0.205	0.190	0.060									
	18							0.003	0.028	0.137	0.285	0.189									
	19								0.007	0.058	0.270	0.377									
	20									0.001	0.012	0.122	0.358								

Note: All values of 0.0005 or less are omitted.

Source: J. Freund and G. Simon, *Modern Elementary Statistics*, Table "The Binomial Distribution," © 1992 Prentice-Hall, Inc. Reproduced by permission of Pearson Education, Inc.

Table C		The Poisson Distribution									
x	λ										
	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	
0	.9048	.8187	.7408	.6703	.6065	.5488	.4966	.4493	.4066	.3679	
1	.0905	.1637	.2222	.2681	.3033	.3293	.3476	.3595	.3659	.3679	
2	.0045	.0164	.0333	.0536	.0758	.0988	.1217	.1438	.1647	.1839	
3	.0002	.0011	.0033	.0072	.0126	.0198	.0284	.0383	.0494	.0613	
4	.0000	.0001	.0003	.0007	.0016	.0030	.0050	.0077	.0111	.0153	
5	.0000	.0000	.0000	.0001	.0002	.0004	.0007	.0012	.0020	.0031	
6	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0002	.0003	.0005	
7	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	
x	λ										
	1.1	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	
0	.3329	.3012	.2725	.2466	.2231	.2019	.1827	.1653	.1496	.1353	
1	.3662	.3614	.3543	.3452	.3347	.3230	.3106	.2975	.2842	.2707	
2	.2014	.2169	.2303	.2417	.2510	.2584	.2640	.2678	.2700	.2707	
3	.0738	.0867	.0998	.1128	.1255	.1378	.1496	.1607	.1710	.1804	
4	.0203	.0260	.0324	.0395	.0471	.0551	.0636	.0723	.0812	.0902	
5	.0045	.0062	.0084	.0111	.0141	.0176	.0216	.0260	.0309	.0361	
6	.0008	.0012	.0018	.0026	.0035	.0047	.0061	.0078	.0098	.0120	
7	.0001	.0002	.0003	.0005	.0008	.0011	.0015	.0020	.0027	.0034	
8	.0000	.0000	.0001	.0001	.0001	.0002	.0003	.0005	.0006	.0009	
9	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0002	
x	λ										
	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	
0	.1225	.1108	.1003	.0907	.0821	.0743	.0672	.0608	.0550	.0498	
1	.2572	.2438	.2306	.2177	.2052	.1931	.1815	.1703	.1596	.1494	
2	.2700	.2681	.2652	.2613	.2565	.2510	.2450	.2384	.2314	.2240	
3	.1890	.1966	.2033	.2090	.2138	.2176	.2205	.2225	.2237	.2240	
4	.0992	.1082	.1169	.1254	.1336	.1414	.1488	.1557	.1622	.1680	
5	.0417	.0476	.0538	.0602	.0668	.0735	.0804	.0872	.0940	.1008	
6	.0146	.0174	.0206	.0241	.0278	.0319	.0362	.0407	.0455	.0504	
7	.0044	.0055	.0068	.0083	.0099	.0118	.0139	.0163	.0188	.0216	
8	.0011	.0015	.0019	.0025	.0031	.0038	.0047	.0057	.0068	.0081	
9	.0003	.0004	.0005	.0007	.0009	.0011	.0014	.0018	.0022	.0027	
10	.0001	.0001	.0001	.0002	.0002	.0003	.0004	.0005	.0006	.0008	
11	.0000	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0002	.0002	
12	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	
x	λ										
	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	
0	.0450	.0408	.0369	.0334	.0302	.0273	.0247	.0224	.0202	.0183	
1	.1397	.1304	.1217	.1135	.1057	.0984	.0915	.0850	.0789	.0733	
2	.2165	.2087	.2008	.1929	.1850	.1771	.1692	.1615	.1539	.1465	
3	.2237	.2226	.2209	.2186	.2158	.2125	.2087	.2046	.2001	.1954	
4	.1734	.1781	.1823	.1858	.1888	.1912	.1931	.1944	.1951	.1954	

Table C		<i>(continued)</i>									
<i>x</i>	λ										
	3.1	3.2	3.3	3.4	3.5	3.6	3.7	3.8	3.9	4.0	
5	.1075	.1140	.1203	.1264	.1322	.1377	.1429	.1477	.1522	.1563	
6	.0555	.0608	.0662	.0716	.0771	.0826	.0881	.0936	.0989	.1042	
7	.0246	.0278	.0312	.0348	.0385	.0425	.0466	.0508	.0551	.0595	
8	.0095	.0111	.0129	.0148	.0169	.0191	.0215	.0241	.0269	.0298	
9	.0033	.0040	.0047	.0056	.0066	.0076	.0089	.0102	.0116	.0132	
10	.0010	.0013	.0016	.0019	.0023	.0028	.0033	.0039	.0045	.0053	
11	.0003	.0004	.0005	.0006	.0007	.0009	.0011	.0013	.0016	.0019	
12	.0001	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0005	.0006	
13	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0001	.0002	.0002	
14	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	
<i>x</i>	λ										
	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	5.0	
0	.0166	.0150	.0136	.0123	.0111	.0101	.0091	.0082	.0074	.0067	
1	.0679	.0630	.0583	.0540	.0500	.0462	.0427	.0395	.0365	.0337	
2	.1393	.1323	.1254	.1188	.1125	.1063	.1005	.0948	.0894	.0842	
3	.1904	.1852	.1798	.1743	.1687	.1631	.1574	.1517	.1460	.1404	
4	.1951	.1944	.1933	.1917	.1898	.1875	.1849	.1820	.1789	.1755	
5	.1600	.1633	.1662	.1687	.1708	.1725	.1738	.1747	.1753	.1755	
6	.1093	.1143	.1191	.1237	.1281	.1323	.1362	.1398	.1432	.1462	
7	.0640	.0686	.0732	.0778	.0824	.0869	.0914	.0959	.1002	.1044	
8	.0328	.0360	.0393	.0428	.0463	.0500	.0537	.0575	.0614	.0653	
9	.0150	.0168	.0188	.0209	.0232	.0255	.0280	.0307	.0334	.0363	
10	.0061	.0071	.0081	.0092	.0104	.0118	.0132	.0147	.0164	.0181	
11	.0023	.0027	.0032	.0037	.0043	.0049	.0056	.0064	.0073	.0082	
12	.0008	.0009	.0011	.0014	.0016	.0019	.0022	.0026	.0030	.0034	
13	.0002	.0003	.0004	.0005	.0006	.0007	.0008	.0009	.0011	.0013	
14	.0001	.0001	.0001	.0001	.0002	.0002	.0003	.0003	.0004	.0005	
15	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0001	.0001	.0002	
<i>x</i>	λ										
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	
0	.0061	.0055	.0050	.0045	.0041	.0037	.0033	.0030	.0027	.0025	
1	.0311	.0287	.0265	.0244	.0225	.0207	.0191	.0176	.0162	.0149	
2	.0793	.0746	.0701	.0659	.0618	.0580	.0544	.0509	.0477	.0446	
3	.1348	.1293	.1239	.1185	.1133	.1082	.1033	.0985	.0938	.0892	
4	.1719	.1681	.1641	.1600	.1558	.1515	.1472	.1428	.1383	.1339	

Table C		<i>(continued)</i>									
x	λ										
	5.1	5.2	5.3	5.4	5.5	5.6	5.7	5.8	5.9	6.0	
5	.1753	.1748	.1740	.1728	.1714	.1697	.1678	.1656	.1632	.1606	
6	.1490	.1515	.1537	.1555	.1571	.1584	.1594	.1601	.1605	.1606	
7	.1086	.1125	.1163	.1200	.1234	.1267	.1298	.1326	.1353	.1377	
8	.0692	.0731	.0771	.0810	.0849	.0887	.0925	.0962	.0998	.1033	
9	.0392	.0423	.0454	.0486	.0519	.0552	.0586	.0620	.0654	.0688	
10	.0200	.0220	.0241	.0262	.0285	.0309	.0334	.0359	.0386	.0413	
11	.0093	.0104	.0116	.0129	.0143	.0157	.0173	.0190	.0207	.0225	
12	.0039	.0045	.0051	.0058	.0065	.0073	.0082	.0092	.0102	.0113	
13	.0015	.0018	.0021	.0024	.0028	.0032	.0036	.0041	.0046	.0052	
14	.0006	.0007	.0008	.0009	.0011	.0013	.0015	.0017	.0019	.0022	
15	.0002	.0002	.0003	.0003	.0004	.0005	.0006	.0007	.0008	.0009	
16	.0001	.0001	.0001	.0001	.0001	.0002	.0002	.0002	.0003	.0003	
17	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0001	
x	λ										
	6.1	6.2	6.3	6.4	6.5	6.6	6.7	6.8	6.9	7.0	
0	.0022	.0020	.0018	.0017	.0015	.0014	.0012	.0011	.0010	.0009	
1	.0137	.0126	.0116	.0106	.0098	.0090	.0082	.0076	.0070	.0064	
2	.0417	.0390	.0364	.0340	.0318	.0296	.0276	.0258	.0240	.0223	
3	.0848	.0806	.0765	.0726	.0688	.0652	.0617	.0584	.0552	.0521	
4	.1294	.1249	.1205	.1162	.1118	.1076	.1034	.0992	.0952	.0912	
5	.1579	.1549	.1519	.1487	.1454	.1420	.1385	.1349	.1314	.1277	
6	.1605	.1601	.1595	.1586	.1575	.1562	.1546	.1529	.1511	.1490	
7	.1399	.1418	.1435	.1450	.1462	.1472	.1480	.1486	.1489	.1490	
8	.1066	.1099	.1130	.1160	.1188	.1215	.1240	.1263	.1284	.1304	
9	.0723	.0757	.0791	.0825	.0858	.0891	.0923	.0954	.0985	.1014	
10	.0441	.0469	.0498	.0528	.0558	.0588	.0618	.0649	.0679	.0710	
11	.0245	.0265	.0285	.0307	.0330	.0353	.0377	.0401	.0426	.0452	
12	.0124	.0137	.0150	.0164	.0179	.0194	.0210	.0227	.0245	.0264	
13	.0058	.0065	.0073	.0081	.0089	.0098	.0108	.0119	.0130	.0142	
14	.0025	.0029	.0033	.0037	.0041	.0046	.0052	.0058	.0064	.0071	
15	.0010	.0012	.0014	.0016	.0018	.0020	.0023	.0026	.0029	.0033	
16	.0004	.0005	.0005	.0006	.0007	.0008	.0010	.0011	.0013	.0014	
17	.0001	.0002	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0006	
18	.0000	.0001	.0001	.0001	.0001	.0001	.0001	.0002	.0002	.0002	
19	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0001	.0001	

Table C		<i>(continued)</i>									
<i>x</i>	λ										
	7.1	7.2	7.3	7.4	7.5	7.6	7.7	7.8	7.9	8.0	
0	.0008	.0007	.0007	.0006	.0006	.0005	.0005	.0004	.0004	.0003	
1	.0059	.0054	.0049	.0045	.0041	.0038	.0035	.0032	.0029	.0027	
2	.0208	.0194	.0180	.0167	.0156	.0145	.0134	.0125	.0116	.0107	
3	.0492	.0464	.0438	.0413	.0389	.0366	.0345	.0324	.0305	.0286	
4	.0874	.0836	.0799	.0764	.0729	.0696	.0663	.0632	.0602	.0573	
5	.1241	.1204	.1167	.1130	.1094	.1057	.1021	.0986	.0951	.0916	
6	.1468	.1445	.1420	.1394	.1367	.1339	.1311	.1282	.1252	.1221	
7	.1489	.1486	.1481	.1474	.1465	.1454	.1442	.1428	.1413	.1396	
8	.1321	.1337	.1351	.1363	.1373	.1382	.1388	.1392	.1395	.1396	
9	.1042	.1070	.1096	.1121	.1144	.1167	.1187	.1207	.1224	.1241	
10	.0740	.0770	.0800	.0829	.0858	.0887	.0914	.0941	.0967	.0993	
11	.0478	.0504	.0531	.0558	.0585	.0613	.0640	.0667	.0695	.0722	
12	.0283	.0303	.0323	.0344	.0366	.0388	.0411	.0434	.0457	.0481	
13	.0154	.0168	.0181	.0196	.0211	.0227	.0243	.0260	.0278	.0296	
14	.0078	.0086	.0095	.0104	.0113	.0123	.0134	.0145	.0157	.0169	
15	.0037	.0041	.0046	.0051	.0057	.0062	.0069	.0075	.0083	.0090	
16	.0016	.0019	.0021	.0024	.0026	.0030	.0033	.0037	.0041	.0045	
17	.0007	.0008	.0009	.0010	.0012	.0013	.0015	.0017	.0019	.0021	
18	.0003	.0003	.0004	.0004	.0005	.0006	.0006	.0007	.0008	.0009	
19	.0001	.0001	.0001	.0002	.0002	.0002	.0003	.0003	.0003	.0004	
20	.0000	.0000	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0002	
21	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0001	
<i>x</i>	λ										
	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	
0	.0003	.0003	.0002	.0002	.0002	.0002	.0002	.0002	.0001	.0001	
1	.0025	.0023	.0021	.0019	.0017	.0016	.0014	.0013	.0012	.0011	
2	.0100	.0092	.0086	.0079	.0074	.0068	.0063	.0058	.0054	.0050	
3	.0269	.0252	.0237	.0222	.0208	.0195	.0183	.0171	.0160	.0150	
4	.0544	.0517	.0491	.0466	.0443	.0420	.0398	.0377	.0357	.0337	
5	.0882	.0849	.0816	.0784	.0752	.0722	.0692	.0663	.0635	.0607	
6	.1191	.1160	.1128	.1097	.1066	.1034	.1003	.0972	.0941	.0911	
7	.1378	.1358	.1338	.1317	.1294	.1271	.1247	.1222	.1197	.1171	
8	.1395	.1392	.1388	.1382	.1375	.1366	.1356	.1344	.1332	.1318	
9	.1256	.1269	.1280	.1290	.1299	.1306	.1311	.1315	.1317	.1318	

Table C		<i>(continued)</i>									
<i>x</i>	λ										
	8.1	8.2	8.3	8.4	8.5	8.6	8.7	8.8	8.9	9.0	
10	.1017	.1040	.1063	.1084	.1104	.1123	.1140	.1157	.1172	.1186	
11	.0749	.0776	.0802	.0828	.0853	.0878	.0902	.0925	.0948	.0970	
12	.0505	.0530	.0555	.0579	.0604	.0629	.0654	.0679	.0703	.0728	
13	.0315	.0334	.0354	.0374	.0395	.0416	.0438	.0459	.0481	.0504	
14	.0182	.0196	.0210	.0225	.0240	.0256	.0272	.0289	.0306	.0324	
15	.0098	.0107	.0116	.0126	.0136	.0147	.0158	.0169	.0182	.0194	
16	.0050	.0055	.0060	.0066	.0072	.0079	.0086	.0093	.0101	.0109	
17	.0024	.0026	.0029	.0033	.0036	.0040	.0044	.0048	.0053	.0058	
18	.0011	.0012	.0014	.0015	.0017	.0019	.0021	.0024	.0026	.0029	
19	.0005	.0005	.0006	.0007	.0008	.0009	.0010	.0011	.0012	.0014	
20	.0002	.0002	.0002	.0003	.0003	.0004	.0004	.0005	.0005	.0006	
21	.0001	.0001	.0001	.0001	.0001	.0002	.0002	.0002	.0002	.0003	
22	.0000	.0000	.0000	.0000	.0001	.0001	.0001	.0001	.0001	.0001	
<i>x</i>	λ										
	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10.0	
0	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0000	
1	.0010	.0009	.0009	.0008	.0007	.0007	.0006	.0005	.0005	.0005	
2	.0046	.0043	.0040	.0037	.0034	.0031	.0029	.0027	.0025	.0023	
3	.0140	.0131	.0123	.0115	.0107	.0100	.0093	.0087	.0081	.0076	
4	.0319	.0302	.0285	.0269	.0254	.0240	.0226	.0213	.0201	.0189	
5	.0581	.0555	.0530	.0506	.0483	.0460	.0439	.0418	.0398	.0378	
6	.0881	.0851	.0822	.0793	.0764	.0736	.0709	.0682	.0656	.0631	
7	.1145	.1118	.1091	.1064	.1037	.1010	.0982	.0955	.0928	.0901	
8	.1302	.1286	.1269	.1251	.1232	.1212	.1191	.1170	.1148	.1126	
9	.1317	.1315	.1311	.1306	.1300	.1293	.1284	.1274	.1263	.1251	
10	.1198	.1210	.1219	.1228	.1235	.1241	.1245	.1249	.1250	.1251	
11	.0991	.1012	.1031	.1049	.1067	.1083	.1098	.1112	.1125	.1137	
12	.0752	.0776	.0799	.0822	.0844	.0866	.0888	.0908	.0928	.0948	
13	.0526	.0549	.0572	.0594	.0617	.0640	.0662	.0685	.0707	.0729	
14	.0342	.0361	.0380	.0399	.0419	.0439	.0459	.0479	.0500	.0521	
15	.0208	.0221	.0235	.0250	.0265	.0281	.0297	.0313	.0330	.0347	
16	.0118	.0127	.0137	.0147	.0157	.0168	.0180	.0192	.0204	.0217	
17	.0063	.0069	.0075	.0081	.0088	.0095	.0103	.0111	.0119	.0128	
18	.0032	.0035	.0039	.0042	.0046	.0051	.0055	.0060	.0065	.0071	
19	.0015	.0017	.0019	.0021	.0023	.0026	.0028	.0031	.0034	.0037	

Table C		<i>(continued)</i>									
<i>x</i>	λ										
	9.1	9.2	9.3	9.4	9.5	9.6	9.7	9.8	9.9	10.0	
20	.0007	.0008	.0009	.0010	.0011	.0012	.0014	.0015	.0017	.0019	
21	.0003	.0003	.0004	.0004	.0005	.0006	.0006	.0007	.0008	.0009	
22	.0001	.0001	.0002	.0002	.0002	.0002	.0003	.0003	.0004	.0004	
23	.0000	.0001	.0001	.0001	.0001	.0001	.0001	.0001	.0002	.0002	
24	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0001	.0001	
<i>x</i>	λ										
	11	12	13	14	15	16	17	18	19	20	
0	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	
1	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	
2	.0010	.0004	.0002	.0001	.0000	.0000	.0000	.0000	.0000	.0000	
3	.0037	.0018	.0008	.0004	.0002	.0001	.0000	.0000	.0000	.0000	
4	.0102	.0053	.0027	.0013	.0006	.0003	.0001	.0001	.0000	.0000	
5	.0224	.0127	.0070	.0037	.0019	.0010	.0005	.0002	.0001	.0001	
6	.0411	.0255	.0152	.0087	.0048	.0026	.0014	.0007	.0004	.0002	
7	.0646	.0437	.0281	.0174	.0104	.0060	.0034	.0018	.0010	.0005	
8	.0888	.0655	.0457	.0304	.0194	.0120	.0072	.0042	.0024	.0013	
9	.1085	.0874	.0661	.0473	.0324	.0213	.0135	.0083	.0050	.0029	
10	.1194	.1048	.0859	.0663	.0486	.0341	.0230	.0150	.0095	.0058	
11	.1194	.1144	.1015	.0844	.0663	.0496	.0355	.0245	.0164	.0106	
12	.1094	.1144	.1099	.0984	.0829	.0661	.0504	.0368	.0259	.0176	
13	.0926	.1056	.1099	.1060	.0956	.0814	.0658	.0509	.0378	.0271	
14	.0728	.0905	.1021	.1060	.1024	.0930	.0800	.0655	.0514	.0387	
15	.0534	.0724	.0885	.0989	.1024	.0992	.0906	.0786	.0650	.0516	
16	.0367	.0543	.0719	.0866	.0960	.0992	.0963	.0884	.0772	.0646	
17	.0237	.0383	.0550	.0713	.0847	.0934	.0963	.0936	.0863	.0760	
18	.0145	.0256	.0397	.0554	.0706	.0830	.0909	.0936	.0911	.0844	
19	.0084	.0161	.0272	.0409	.0557	.0699	.0814	.0887	.0911	.0888	
20	.0046	.0097	.0177	.0286	.0418	.0559	.0692	.0798	.0866	.0888	
21	.0024	.0055	.0109	.0191	.0299	.0426	.0560	.0684	.0783	.0846	
22	.0012	.0030	.0065	.0121	.0204	.0310	.0433	.0560	.0676	.0769	
23	.0006	.0016	.0037	.0074	.0133	.0216	.0320	.0438	.0559	.0669	
24	.0003	.0008	.0020	.0043	.0083	.0144	.0226	.0328	.0442	.0557	
25	.0001	.0004	.0010	.0024	.0050	.0092	.0154	.0237	.0336	.0446	
26	.0000	.0002	.0005	.0013	.0029	.0057	.0101	.0164	.0246	.0343	
27	.0000	.0001	.0002	.0007	.0016	.0034	.0063	.0109	.0173	.0254	
28	.0000	.0000	.0001	.0003	.0009	.0019	.0038	.0070	.0117	.0181	
29	.0000	.0000	.0001	.0002	.0004	.0011	.0023	.0044	.0077	.0125	

Table C		<i>(concluded)</i>									
x	λ										
	11	12	13	14	15	16	17	18	19	20	
30	.0000	.0000	.0000	.0001	.0002	.0006	.0013	.0026	.0049	.0083	
31	.0000	.0000	.0000	.0000	.0001	.0003	.0007	.0015	.0030	.0054	
32	.0000	.0000	.0000	.0000	.0001	.0001	.0004	.0009	.0018	.0034	
33	.0000	.0000	.0000	.0000	.0000	.0001	.0002	.0005	.0010	.0020	
34	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0002	.0006	.0012	
35	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0003	.0007	
36	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0002	.0004	
37	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	.0002	
38	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	
39	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0000	.0001	

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Table E The Standard Normal Distribution										
Cumulative Standard Normal Distribution										
z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0002
-3.3	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004	.0003
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0005	.0005	.0005
-3.1	.0010	.0009	.0009	.0009	.0008	.0008	.0008	.0008	.0007	.0007
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
-2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
-2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
-2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
-2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
-2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
-2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
-2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
-2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
-2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
-1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
-1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
-1.7	.0446	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
-1.6	.0548	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
-1.5	.0668	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
-1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
-1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
-1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-0.7	.2420	.2389	.2358	.2327	.2296	.2266	.2236	.2206	.2177	.2148
-0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
-0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641

For z values less than -3.49 , use 0.0001 .

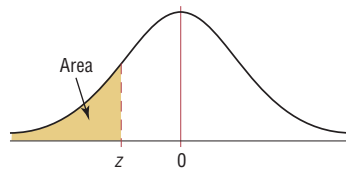


Table E (continued)

Cumulative Standard Normal Distribution										
<i>z</i>	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
0.0	.5000	.5040	.5080	.5120	.5160	.5199	.5239	.5279	.5319	.5359
0.1	.5398	.5438	.5478	.5517	.5557	.5596	.5636	.5675	.5714	.5753
0.2	.5793	.5832	.5871	.5910	.5948	.5987	.6026	.6064	.6103	.6141
0.3	.6179	.6217	.6255	.6293	.6331	.6368	.6406	.6443	.6480	.6517
0.4	.6554	.6591	.6628	.6664	.6700	.6736	.6772	.6808	.6844	.6879
0.5	.6915	.6950	.6985	.7019	.7054	.7088	.7123	.7157	.7190	.7224
0.6	.7257	.7291	.7324	.7357	.7389	.7422	.7454	.7486	.7517	.7549
0.7	.7580	.7611	.7642	.7673	.7704	.7734	.7764	.7794	.7823	.7852
0.8	.7881	.7910	.7939	.7967	.7995	.8023	.8051	.8078	.8106	.8133
0.9	.8159	.8186	.8212	.8238	.8264	.8289	.8315	.8340	.8365	.8389
1.0	.8413	.8438	.8461	.8485	.8508	.8531	.8554	.8577	.8599	.8621
1.1	.8643	.8665	.8686	.8708	.8729	.8749	.8770	.8790	.8810	.8830
1.2	.8849	.8869	.8888	.8907	.8925	.8944	.8962	.8980	.8997	.9015
1.3	.9032	.9049	.9066	.9082	.9099	.9115	.9131	.9147	.9162	.9177
1.4	.9192	.9207	.9222	.9236	.9251	.9265	.9279	.9292	.9306	.9319
1.5	.9332	.9345	.9357	.9370	.9382	.9394	.9406	.9418	.9429	.9441
1.6	.9452	.9463	.9474	.9484	.9495	.9505	.9515	.9525	.9535	.9545
1.7	.9554	.9564	.9573	.9582	.9591	.9599	.9608	.9616	.9625	.9633
1.8	.9641	.9649	.9656	.9664	.9671	.9678	.9686	.9693	.9699	.9706
1.9	.9713	.9719	.9726	.9732	.9738	.9744	.9750	.9756	.9761	.9767
2.0	.9772	.9778	.9783	.9788	.9793	.9798	.9803	.9808	.9812	.9817
2.1	.9821	.9826	.9830	.9834	.9838	.9842	.9846	.9850	.9854	.9857
2.2	.9861	.9864	.9868	.9871	.9875	.9878	.9881	.9884	.9887	.9890
2.3	.9893	.9896	.9898	.9901	.9904	.9906	.9909	.9911	.9913	.9916
2.4	.9918	.9920	.9922	.9925	.9927	.9929	.9931	.9932	.9934	.9936
2.5	.9938	.9940	.9941	.9943	.9945	.9946	.9948	.9949	.9951	.9952
2.6	.9953	.9955	.9956	.9957	.9959	.9960	.9961	.9962	.9963	.9964
2.7	.9965	.9966	.9967	.9968	.9969	.9970	.9971	.9972	.9973	.9974
2.8	.9974	.9975	.9976	.9977	.9977	.9978	.9979	.9979	.9980	.9981
2.9	.9981	.9982	.9982	.9983	.9984	.9984	.9985	.9985	.9986	.9986
3.0	.9987	.9987	.9987	.9988	.9988	.9989	.9989	.9989	.9990	.9990
3.1	.9990	.9991	.9991	.9991	.9992	.9992	.9992	.9992	.9993	.9993
3.2	.9993	.9993	.9994	.9994	.9994	.9994	.9994	.9995	.9995	.9995
3.3	.9995	.9995	.9995	.9996	.9996	.9996	.9996	.9996	.9996	.9997
3.4	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9997	.9998

For *z* values greater than 3.49, use 0.9999.

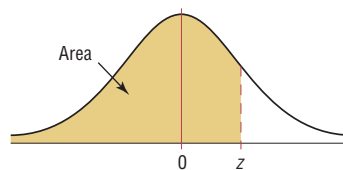


Table F The <i>t</i> Distribution						
	Confidence intervals	80%	90%	95%	98%	99%
d.f.	One tail, α	0.10	0.05	0.025	0.01	0.005
	Two tails, α	0.20	0.10	0.05	0.02	0.01
1		3.078	6.314	12.706	31.821	63.657
2		1.886	2.920	4.303	6.965	9.925
3		1.638	2.353	3.182	4.541	5.841
4		1.533	2.132	2.776	3.747	4.604
5		1.476	2.015	2.571	3.365	4.032
6		1.440	1.943	2.447	3.143	3.707
7		1.415	1.895	2.365	2.998	3.499
8		1.397	1.860	2.306	2.896	3.355
9		1.383	1.833	2.262	2.821	3.250
10		1.372	1.812	2.228	2.764	3.169
11		1.363	1.796	2.201	2.718	3.106
12		1.356	1.782	2.179	2.681	3.055
13		1.350	1.771	2.160	2.650	3.012
14		1.345	1.761	2.145	2.624	2.977
15		1.341	1.753	2.131	2.602	2.947
16		1.337	1.746	2.120	2.583	2.921
17		1.333	1.740	2.110	2.567	2.898
18		1.330	1.734	2.101	2.552	2.878
19		1.328	1.729	2.093	2.539	2.861
20		1.325	1.725	2.086	2.528	2.845
21		1.323	1.721	2.080	2.518	2.831
22		1.321	1.717	2.074	2.508	2.819
23		1.319	1.714	2.069	2.500	2.807
24		1.318	1.711	2.064	2.492	2.797
25		1.316	1.708	2.060	2.485	2.787
26		1.315	1.706	2.056	2.479	2.779
27		1.314	1.703	2.052	2.473	2.771
28		1.313	1.701	2.048	2.467	2.763
29		1.311	1.699	2.045	2.462	2.756
30		1.310	1.697	2.042	2.457	2.750
32		1.309	1.694	2.037	2.449	2.738
34		1.307	1.691	2.032	2.441	2.728
36		1.306	1.688	2.028	2.434	2.719
38		1.304	1.686	2.024	2.429	2.712
40		1.303	1.684	2.021	2.423	2.704
45		1.301	1.679	2.014	2.412	2.690
50		1.299	1.676	2.009	2.403	2.678
55		1.297	1.673	2.004	2.396	2.668
60		1.296	1.671	2.000	2.390	2.660
65		1.295	1.669	1.997	2.385	2.654
70		1.294	1.667	1.994	2.381	2.648
75		1.293	1.665	1.992	2.377	2.643
80		1.292	1.664	1.990	2.374	2.639
90		1.291	1.662	1.987	2.368	2.632
100		1.290	1.660	1.984	2.364	2.626
500		1.283	1.648	1.965	2.334	2.586
1000		1.282	1.646	1.962	2.330	2.581
(z) ∞		1.282 ^a	1.645 ^b	1.960	2.326 ^c	2.576 ^d

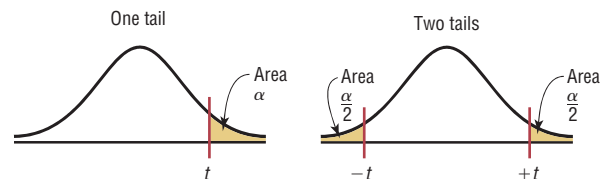
^aThis value has been rounded to 1.28 in the textbook.

^bThis value has been rounded to 1.65 in the textbook.

^cThis value has been rounded to 2.33 in the textbook.

^dThis value has been rounded to 2.58 in the textbook.

Source: Adapted from W. H. Beyer, *Handbook of Tables for Probability and Statistics*, 2nd ed., CRC Press, Boca Raton, Fla., 1986. Reprinted with permission.



Degrees of freedom	The Chi-Square Distribution									
	α									
	0.995	0.99	0.975	0.95	0.90	0.10	0.05	0.025	0.01	0.005
1	—	—	0.001	0.004	0.016	2.706	3.841	5.024	6.635	7.879
2	0.010	0.020	0.051	0.103	0.211	4.605	5.991	7.378	9.210	10.597
3	0.072	0.115	0.216	0.352	0.584	6.251	7.815	9.348	11.345	12.838
4	0.207	0.297	0.484	0.711	1.064	7.779	9.488	11.143	13.277	14.860
5	0.412	0.554	0.831	1.145	1.610	9.236	11.071	12.833	15.086	16.750
6	0.676	0.872	1.237	1.635	2.204	10.645	12.592	14.449	16.812	18.548
7	0.989	1.239	1.690	2.167	2.833	12.017	14.067	16.013	18.475	20.278
8	1.344	1.646	2.180	2.733	3.490	13.362	15.507	17.535	20.090	21.955
9	1.735	2.088	2.700	3.325	4.168	14.684	16.919	19.023	21.666	23.589
10	2.156	2.558	3.247	3.940	4.865	15.987	18.307	20.483	23.209	25.188
11	2.603	3.053	3.816	4.575	5.578	17.275	19.675	21.920	24.725	26.757
12	3.074	3.571	4.404	5.226	6.304	18.549	21.026	23.337	26.217	28.299
13	3.565	4.107	5.009	5.892	7.042	19.812	22.362	24.736	27.688	29.819
14	4.075	4.660	5.629	6.571	7.790	21.064	23.685	26.119	29.141	31.319
15	4.601	5.229	6.262	7.261	8.547	22.307	24.996	27.488	30.578	32.801
16	5.142	5.812	6.908	7.962	9.312	23.542	26.296	28.845	32.000	34.267
17	5.697	6.408	7.564	8.672	10.085	24.769	27.587	30.191	33.409	35.718
18	6.265	7.015	8.231	9.390	10.865	25.989	28.869	31.526	34.805	37.156
19	6.844	7.633	8.907	10.117	11.651	27.204	30.144	32.852	36.191	38.582
20	7.434	8.260	9.591	10.851	12.443	28.412	31.410	34.170	37.566	39.997
21	8.034	8.897	10.283	11.591	13.240	29.615	32.671	35.479	38.932	41.401
22	8.643	9.542	10.982	12.338	14.042	30.813	33.924	36.781	40.289	42.796
23	9.262	10.196	11.689	13.091	14.848	32.007	35.172	38.076	41.638	44.181
24	9.886	10.856	12.401	13.848	15.659	33.196	36.415	39.364	42.980	45.559
25	10.520	11.524	13.120	14.611	16.473	34.382	37.652	40.646	44.314	46.928
26	11.160	12.198	13.844	15.379	17.292	35.563	38.885	41.923	45.642	48.290
27	11.808	12.879	14.573	16.151	18.114	36.741	40.113	43.194	46.963	49.645
28	12.461	13.565	15.308	16.928	18.939	37.916	41.337	44.461	48.278	50.993
29	13.121	14.257	16.047	17.708	19.768	39.087	42.557	45.722	49.588	52.336
30	13.787	14.954	16.791	18.493	20.599	40.256	43.773	46.979	50.892	53.672
40	20.707	22.164	24.433	26.509	29.051	51.805	55.758	59.342	63.691	66.766
50	27.991	29.707	32.357	34.764	37.689	63.167	67.505	71.420	76.154	79.490
60	35.534	37.485	40.482	43.188	46.459	74.397	79.082	83.298	88.379	91.952
70	43.275	45.442	48.758	51.739	55.329	85.527	90.531	95.023	100.425	104.215
80	51.172	53.540	57.153	60.391	64.278	96.578	101.879	106.629	112.329	116.321
90	59.196	61.754	65.647	69.126	73.291	107.565	113.145	118.136	124.116	128.299
100	67.328	70.065	74.222	77.929	82.358	118.498	124.342	129.561	135.807	140.169

Source: Owen, *Handbook of Statistical Tables*, Table A-4 "Chi-Square Distribution Table," © 1962 by Addison-Wesley Publishing Company, Inc. Copyright renewal © 1990. Reproduced by permission of Pearson Education, Inc.

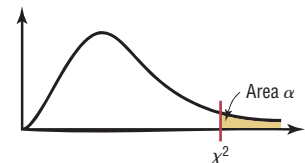


Table H The *F* Distribution

d.f.D.: degrees of freedom, denominator	d.f.N.: degrees of freedom, numerator																∞		
	1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40		60	120
1	16.211	20.000	21.615	22.500	23.056	23.437	23.715	23.925	24.091	24.224	24.426	24.630	24.836	24.940	25.044	25.148	25.253	25.359	25.465
2	19.85	199.0	199.2	199.2	199.3	199.3	199.4	199.4	199.4	199.4	199.4	199.4	199.4	199.5	199.5	199.5	199.5	199.5	199.5
3	55.55	49.80	47.47	46.19	45.39	44.84	44.43	44.13	43.88	43.69	43.39	43.08	42.78	42.62	42.47	42.31	42.15	41.99	41.83
4	31.33	26.28	24.26	23.15	22.46	21.97	21.62	21.35	21.14	20.97	20.70	20.44	20.17	20.03	19.89	19.75	19.61	19.47	19.32
5	22.78	18.31	16.53	15.56	14.94	14.51	14.20	13.96	13.77	13.62	13.38	13.15	12.90	12.78	12.66	12.53	12.40	12.27	12.14
6	18.63	14.54	12.92	12.03	11.46	11.07	10.79	10.57	10.39	10.25	10.03	9.81	9.59	9.47	9.36	9.24	9.12	9.00	8.88
7	16.24	12.40	10.88	10.05	9.52	9.16	8.89	8.68	8.51	8.38	8.18	7.97	7.75	7.65	7.53	7.42	7.31	7.19	7.08
8	14.69	11.04	9.60	8.81	8.30	7.95	7.69	7.50	7.34	7.21	7.01	6.81	6.61	6.50	6.40	6.29	6.18	6.06	5.95
9	13.61	10.11	8.72	7.96	7.47	7.13	6.88	6.69	6.54	6.42	6.23	6.03	5.83	5.73	5.62	5.52	5.41	5.30	5.19
10	12.83	9.43	8.08	7.34	6.87	6.54	6.30	6.12	5.97	5.85	5.66	5.47	5.27	5.17	5.07	4.97	4.86	4.75	4.64
11	12.23	8.91	7.60	6.88	6.42	6.10	5.86	5.68	5.54	5.42	5.24	5.05	4.86	4.76	4.65	4.55	4.44	4.34	4.23
12	11.75	8.51	7.23	6.52	6.07	5.76	5.52	5.35	5.20	5.09	4.91	4.72	4.53	4.43	4.33	4.23	4.12	4.01	3.90
13	11.37	8.19	6.93	6.23	5.79	5.48	5.25	5.08	4.94	4.82	4.64	4.46	4.27	4.17	4.07	3.97	3.87	3.76	3.65
14	11.06	7.92	6.68	6.00	5.56	5.26	5.03	4.86	4.72	4.60	4.43	4.25	4.06	3.96	3.86	3.76	3.66	3.55	3.44
15	10.80	7.70	6.48	5.80	5.37	5.07	4.85	4.67	4.54	4.42	4.25	4.07	3.88	3.79	3.69	3.58	3.48	3.37	3.26
16	10.58	7.51	6.30	5.64	5.21	4.91	4.69	4.52	4.38	4.27	4.10	3.92	3.73	3.64	3.54	3.44	3.33	3.22	3.11
17	10.38	7.35	6.16	5.50	5.07	4.78	4.56	4.39	4.25	4.14	3.97	3.79	3.61	3.51	3.41	3.31	3.21	3.10	2.98
18	10.22	7.21	6.03	5.37	4.96	4.66	4.44	4.28	4.14	4.03	3.86	3.68	3.50	3.40	3.30	3.20	3.10	2.99	2.87
19	10.07	7.09	5.92	5.27	4.85	4.56	4.34	4.18	4.04	3.93	3.76	3.59	3.40	3.31	3.21	3.11	3.00	2.89	2.78
20	9.94	6.99	5.82	5.17	4.76	4.47	4.26	4.09	3.96	3.85	3.68	3.50	3.32	3.22	3.12	3.02	2.92	2.81	2.69
21	9.83	6.89	5.73	5.09	4.68	4.39	4.18	4.01	3.88	3.77	3.60	3.43	3.24	3.15	3.05	2.95	2.84	2.73	2.61
22	9.73	6.81	5.65	5.02	4.61	4.32	4.11	3.94	3.81	3.70	3.54	3.36	3.18	3.08	2.98	2.88	2.77	2.66	2.55
23	9.63	6.73	5.58	4.95	4.54	4.26	4.05	3.88	3.75	3.64	3.47	3.30	3.12	3.02	2.92	2.82	2.71	2.60	2.48
24	9.55	6.66	5.52	4.89	4.49	4.20	3.99	3.83	3.69	3.59	3.42	3.25	3.06	2.97	2.87	2.77	2.66	2.55	2.43
25	9.48	6.60	5.46	4.84	4.43	4.15	3.94	3.78	3.64	3.54	3.37	3.20	3.01	2.92	2.82	2.72	2.61	2.50	2.38
26	9.41	6.54	5.41	4.79	4.38	4.10	3.89	3.73	3.60	3.49	3.33	3.15	2.97	2.87	2.77	2.67	2.56	2.45	2.33
27	9.34	6.49	5.36	4.74	4.34	4.06	3.85	3.69	3.56	3.45	3.28	3.11	2.93	2.83	2.73	2.63	2.52	2.41	2.29
28	9.28	6.44	5.32	4.70	4.30	4.02	3.81	3.65	3.52	3.41	3.25	3.07	2.89	2.79	2.69	2.59	2.48	2.37	2.25
29	9.23	6.40	5.28	4.66	4.26	3.98	3.77	3.61	3.48	3.38	3.21	3.04	2.86	2.76	2.66	2.56	2.45	2.33	2.24
30	9.18	6.35	5.24	4.62	4.23	3.95	3.74	3.58	3.45	3.34	3.18	3.01	2.82	2.73	2.63	2.52	2.42	2.30	2.18
40	8.83	6.07	4.98	4.37	3.99	3.71	3.51	3.35	3.22	3.12	2.95	2.78	2.60	2.50	2.40	2.30	2.18	2.06	1.93
60	8.49	5.79	4.73	4.14	3.76	3.49	3.29	3.13	3.01	2.90	2.74	2.57	2.39	2.29	2.19	2.08	1.96	1.83	1.69
120	8.18	5.54	4.50	3.92	3.55	3.28	3.09	2.93	2.81	2.71	2.54	2.37	2.19	2.09	1.98	1.87	1.75	1.61	1.43
∞	7.88	5.30	4.28	3.72	3.35	3.09	2.90	2.74	2.62	2.52	2.36	2.19	2.00	1.90	1.79	1.67	1.53	1.36	1.00

d.f.D.: degrees of freedom, denominator		d.f.N.: degrees of freedom, numerator																			
		1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞	
Table H <i>(continued)</i>		$\alpha = 0.025$																			
		1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120	∞	
1	647.8	799.5	864.2	899.6	921.8	937.1	948.2	956.7	963.3	968.6	976.7	984.9	993.1	997.2	1001	1006	1010	1014	1018		
2	38.51	39.00	39.17	39.25	39.30	39.33	39.36	39.37	39.39	39.40	39.41	39.43	39.45	39.46	39.46	39.47	39.48	39.49	39.50		
3	17.44	16.04	15.44	15.10	14.88	14.73	14.62	14.54	14.47	14.42	14.34	14.25	14.17	14.12	14.08	14.04	13.99	13.95	13.90		
4	12.22	10.65	9.98	9.60	9.36	9.20	9.07	8.98	8.90	8.84	8.75	8.66	8.56	8.51	8.46	8.41	8.36	8.31	8.26		
5	10.01	8.43	7.76	7.39	7.15	6.98	6.85	6.76	6.68	6.62	6.52	6.43	6.33	6.28	6.23	6.18	6.12	6.07	6.02		
6	8.81	7.26	6.60	6.23	5.99	5.82	5.70	5.60	5.52	5.46	5.37	5.27	5.17	5.12	5.07	5.01	4.96	4.90	4.85		
7	8.07	6.54	5.89	5.52	5.29	5.12	4.99	4.90	4.82	4.76	4.67	4.57	4.47	4.42	4.36	4.31	4.25	4.20	4.14		
8	7.57	6.06	5.42	5.05	4.82	4.65	4.53	4.43	4.36	4.30	4.20	4.10	4.00	3.95	3.89	3.84	3.78	3.73	3.67		
9	7.21	5.71	5.08	4.72	4.48	4.32	4.20	4.10	4.03	3.96	3.87	3.77	3.67	3.61	3.56	3.51	3.45	3.39	3.33		
10	6.94	5.46	4.83	4.47	4.24	4.07	3.95	3.85	3.78	3.72	3.62	3.52	3.42	3.37	3.31	3.26	3.20	3.14	3.08		
11	6.72	5.26	4.63	4.28	4.04	3.88	3.76	3.66	3.59	3.53	3.43	3.33	3.23	3.17	3.12	3.06	3.00	2.94	2.88		
12	6.55	5.10	4.47	4.12	3.89	3.73	3.61	3.51	3.44	3.37	3.28	3.18	3.07	3.02	2.96	2.91	2.85	2.79	2.72		
13	6.41	4.97	4.35	4.00	3.77	3.60	3.48	3.39	3.31	3.25	3.15	3.05	2.95	2.89	2.84	2.78	2.72	2.66	2.60		
14	6.30	4.86	4.24	3.89	3.66	3.50	3.38	3.29	3.21	3.15	3.05	2.95	2.84	2.79	2.73	2.67	2.61	2.55	2.49		
15	6.20	4.77	4.15	3.80	3.58	3.41	3.29	3.20	3.12	3.06	2.96	2.86	2.76	2.70	2.64	2.59	2.52	2.46	2.40		
16	6.12	4.69	4.08	3.73	3.50	3.34	3.22	3.12	3.05	2.99	2.89	2.79	2.68	2.63	2.57	2.51	2.45	2.38	2.32		
17	6.04	4.62	4.01	3.66	3.44	3.28	3.16	3.06	2.98	2.92	2.82	2.72	2.62	2.56	2.50	2.44	2.38	2.32	2.25		
18	5.98	4.56	3.95	3.61	3.38	3.22	3.10	3.01	2.93	2.87	2.77	2.67	2.56	2.50	2.44	2.38	2.32	2.26	2.19		
19	5.92	4.51	3.90	3.56	3.33	3.17	3.05	2.96	2.88	2.82	2.72	2.62	2.51	2.45	2.39	2.33	2.27	2.20	2.13		
20	5.87	4.46	3.86	3.51	3.29	3.13	3.01	2.91	2.84	2.77	2.68	2.57	2.46	2.41	2.35	2.29	2.22	2.16	2.09		
21	5.83	4.42	3.82	3.48	3.25	3.09	2.97	2.87	2.80	2.73	2.64	2.53	2.42	2.37	2.31	2.25	2.18	2.11	2.04		
22	5.79	4.38	3.78	3.44	3.22	3.05	2.93	2.84	2.76	2.70	2.60	2.50	2.39	2.33	2.27	2.21	2.14	2.08	2.00		
23	5.75	4.35	3.75	3.41	3.18	3.02	2.90	2.81	2.73	2.67	2.57	2.47	2.36	2.30	2.24	2.18	2.11	2.04	1.97		
24	5.72	4.32	3.72	3.38	3.15	2.99	2.87	2.78	2.70	2.64	2.54	2.44	2.33	2.27	2.21	2.15	2.08	2.01	1.94		
25	5.69	4.29	3.69	3.35	3.13	2.97	2.85	2.75	2.68	2.61	2.51	2.41	2.30	2.24	2.18	2.12	2.05	1.98	1.91		
26	5.66	4.27	3.67	3.33	3.10	2.94	2.82	2.73	2.65	2.59	2.49	2.39	2.28	2.22	2.16	2.09	2.03	1.95	1.88		
27	5.63	4.24	3.65	3.31	3.08	2.92	2.80	2.71	2.63	2.57	2.47	2.36	2.25	2.19	2.13	2.07	2.00	1.93	1.85		
28	5.61	4.22	3.63	3.29	3.06	2.90	2.78	2.69	2.61	2.55	2.45	2.34	2.23	2.17	2.11	2.05	1.98	1.91	1.83		
29	5.59	4.20	3.61	3.27	3.04	2.88	2.76	2.67	2.59	2.53	2.43	2.32	2.21	2.15	2.09	2.03	1.96	1.89	1.81		
30	5.57	4.18	3.59	3.25	3.03	2.87	2.75	2.65	2.57	2.51	2.41	2.31	2.20	2.14	2.07	2.01	1.94	1.87	1.79		
40	5.42	4.05	3.46	3.13	2.90	2.74	2.62	2.53	2.45	2.39	2.29	2.18	2.07	2.01	1.94	1.88	1.80	1.72	1.64		
60	5.29	3.93	3.34	3.01	2.79	2.63	2.51	2.41	2.33	2.27	2.17	2.06	1.94	1.88	1.82	1.74	1.67	1.58	1.48		
120	5.15	3.80	3.23	2.89	2.67	2.52	2.39	2.30	2.22	2.16	2.05	1.94	1.82	1.76	1.69	1.61	1.53	1.43	1.31		
∞	5.02	3.69	3.12	2.79	2.57	2.41	2.29	2.19	2.11	2.05	1.94	1.83	1.71	1.64	1.57	1.48	1.39	1.27	1.00		

Table H
(continued)

d.f.D.: degrees of freedom, denominator		d.f.N.: degrees of freedom, numerator																	
		1	2	3	4	5	6	7	8	9	10	12	15	20	24	30	40	60	120
1	161.4	199.5	215.7	224.6	230.2	234.0	236.8	238.9	240.5	241.9	243.9	245.9	248.0	249.1	250.1	251.1	252.2	253.3	254.3
2	18.51	19.00	19.16	19.25	19.30	19.33	19.35	19.37	19.38	19.40	19.41	19.43	19.45	19.45	19.46	19.47	19.48	19.49	19.50
3	10.13	9.55	9.28	9.12	9.01	8.94	8.89	8.85	8.81	8.79	8.74	8.70	8.66	8.64	8.62	8.59	8.57	8.55	8.53
4	7.71	6.94	6.59	6.39	6.26	6.16	6.09	6.04	6.00	5.96	5.91	5.86	5.80	5.77	5.75	5.72	5.69	5.66	5.63
5	6.61	5.79	5.41	5.19	5.05	4.95	4.88	4.82	4.77	4.74	4.68	4.62	4.56	4.53	4.50	4.46	4.43	4.40	4.36
6	5.99	5.14	4.76	4.53	4.39	4.28	4.21	4.15	4.10	4.06	4.00	3.94	3.87	3.84	3.81	3.77	3.74	3.70	3.67
7	5.59	4.74	4.35	4.12	3.97	3.87	3.79	3.73	3.68	3.64	3.57	3.51	3.44	3.41	3.38	3.34	3.30	3.27	3.23
8	5.32	4.46	4.07	3.84	3.69	3.58	3.50	3.44	3.39	3.35	3.28	3.22	3.15	3.12	3.08	3.04	3.01	2.97	2.93
9	5.12	4.26	3.86	3.63	3.48	3.37	3.29	3.23	3.18	3.14	3.07	3.01	2.94	2.90	2.86	2.83	2.79	2.75	2.71
10	4.96	4.10	3.71	3.48	3.33	3.22	3.14	3.07	3.02	2.98	2.91	2.85	2.77	2.74	2.70	2.66	2.62	2.58	2.54
11	4.84	3.98	3.59	3.36	3.20	3.09	3.01	2.95	2.90	2.85	2.79	2.72	2.65	2.61	2.57	2.53	2.49	2.45	2.40
12	4.75	3.89	3.49	3.26	3.11	3.00	2.91	2.85	2.80	2.75	2.69	2.62	2.54	2.51	2.47	2.43	2.38	2.34	2.30
13	4.67	3.81	3.41	3.18	3.03	2.92	2.83	2.77	2.71	2.67	2.60	2.53	2.46	2.42	2.38	2.34	2.30	2.25	2.21
14	4.60	3.74	3.34	3.11	2.96	2.85	2.76	2.70	2.65	2.60	2.53	2.46	2.39	2.35	2.31	2.27	2.22	2.18	2.13
15	4.54	3.68	3.29	3.06	2.90	2.79	2.71	2.64	2.59	2.54	2.48	2.40	2.33	2.29	2.25	2.20	2.16	2.11	2.07
16	4.49	3.63	3.24	3.01	2.85	2.74	2.66	2.59	2.54	2.49	2.42	2.35	2.28	2.24	2.19	2.15	2.11	2.06	2.01
17	4.45	3.59	3.20	2.96	2.81	2.70	2.61	2.55	2.49	2.45	2.38	2.31	2.23	2.19	2.15	2.10	2.06	2.01	1.96
18	4.41	3.55	3.16	2.93	2.77	2.66	2.58	2.51	2.46	2.41	2.34	2.27	2.19	2.15	2.11	2.06	2.02	1.97	1.92
19	4.38	3.52	3.13	2.90	2.74	2.63	2.54	2.48	2.42	2.38	2.31	2.23	2.16	2.11	2.07	2.03	1.98	1.93	1.88
20	4.35	3.49	3.10	2.87	2.71	2.60	2.51	2.45	2.39	2.35	2.28	2.20	2.12	2.08	2.04	1.99	1.95	1.90	1.84
21	4.32	3.47	3.07	2.84	2.68	2.57	2.49	2.42	2.37	2.32	2.25	2.18	2.10	2.05	2.01	1.96	1.92	1.87	1.81
22	4.30	3.44	3.05	2.82	2.66	2.55	2.46	2.40	2.34	2.30	2.23	2.15	2.07	2.03	1.98	1.94	1.89	1.84	1.78
23	4.28	3.42	3.03	2.80	2.64	2.53	2.44	2.37	2.32	2.27	2.20	2.13	2.05	2.01	1.96	1.91	1.86	1.81	1.76
24	4.26	3.40	3.01	2.78	2.62	2.51	2.42	2.36	2.30	2.25	2.18	2.11	2.03	1.98	1.94	1.89	1.84	1.79	1.73
25	4.24	3.39	2.99	2.76	2.60	2.49	2.40	2.34	2.28	2.24	2.16	2.09	2.01	1.96	1.92	1.87	1.82	1.77	1.71
26	4.23	3.37	2.98	2.74	2.59	2.47	2.39	2.32	2.27	2.22	2.15	2.07	1.99	1.95	1.90	1.85	1.80	1.75	1.69
27	4.21	3.35	2.96	2.73	2.57	2.46	2.37	2.31	2.25	2.20	2.13	2.06	1.97	1.93	1.88	1.84	1.79	1.73	1.67
28	4.20	3.34	2.95	2.71	2.56	2.45	2.36	2.29	2.24	2.19	2.12	2.04	1.96	1.91	1.87	1.82	1.77	1.71	1.65
29	4.18	3.33	2.93	2.70	2.55	2.43	2.35	2.28	2.22	2.18	2.10	2.03	1.94	1.90	1.85	1.81	1.75	1.70	1.64
30	4.17	3.32	2.92	2.69	2.53	2.42	2.33	2.27	2.21	2.16	2.09	2.01	1.93	1.89	1.84	1.79	1.74	1.68	1.62
40	4.08	3.23	2.84	2.61	2.45	2.34	2.25	2.18	2.12	2.08	2.00	1.92	1.84	1.79	1.74	1.69	1.64	1.58	1.51
60	4.00	3.15	2.76	2.53	2.37	2.25	2.17	2.10	2.04	1.99	1.92	1.84	1.75	1.70	1.65	1.59	1.53	1.47	1.39
120	3.92	3.07	2.68	2.45	2.29	2.17	2.09	2.02	1.96	1.91	1.83	1.75	1.66	1.61	1.55	1.50	1.43	1.35	1.25
∞	3.84	3.00	2.60	2.37	2.21	2.10	2.01	1.94	1.88	1.83	1.75	1.67	1.57	1.52	1.46	1.39	1.32	1.22	1.00

Table I Critical Values for the PPMC

Reject $H_0: \rho = 0$ if the absolute value of r is greater than the value given in the table. The values are for a two-tailed test; d.f. = $n - 2$.

d.f.	$\alpha = 0.05$	$\alpha = 0.01$
1	0.999	0.999
2	0.950	0.999
3	0.878	0.959
4	0.811	0.917
5	0.754	0.875
6	0.707	0.834
7	0.666	0.798
8	0.632	0.765
9	0.602	0.735
10	0.576	0.708
11	0.553	0.684
12	0.532	0.661
13	0.514	0.641
14	0.497	0.623
15	0.482	0.606
16	0.468	0.590
17	0.456	0.575
18	0.444	0.561
19	0.433	0.549
20	0.423	0.537
25	0.381	0.487
30	0.349	0.449
35	0.325	0.418
40	0.304	0.393
45	0.288	0.372
50	0.273	0.354
60	0.250	0.325
70	0.232	0.302
80	0.217	0.283
90	0.205	0.267
100	0.195	0.254

Source: From *Biometrika Tables for Statisticians*, vol. 1 (1962), p. 138.
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Table J Critical Values for the Sign Test

Reject the null hypothesis if the smaller number of positive or negative signs is less than or equal to the value in the table.

n	One-tailed, $\alpha = 0.005$	$\alpha = 0.01$	$\alpha = 0.025$	$\alpha = 0.05$
	Two-tailed, $\alpha = 0.01$	$\alpha = 0.02$	$\alpha = 0.05$	$\alpha = 0.10$
8	0	0	0	1
9	0	0	1	1
10	0	0	1	1
11	0	1	1	2
12	1	1	2	2
13	1	1	2	3
14	1	2	3	3
15	2	2	3	3
16	2	2	3	4
17	2	3	4	4
18	3	3	4	5
19	3	4	4	5
20	3	4	5	5
21	4	4	5	6
22	4	5	5	6
23	4	5	6	7
24	5	5	6	7
25	5	6	6	7

Note: Table J is for one-tailed or two-tailed tests. The term n represents the total number of positive and negative signs. The test value is the number of less frequent signs.

Source: Table 1, p. 560, from "The Statistical Sign Test" by W. J. Dixon and A. M. Mood, vol. 41, no. 236 (Dec. 1946), pp. 557–566.

Table K		Critical Values for the Wilcoxon Signed-Rank Test			
Reject the null hypothesis if the test value is less than or equal to the value given in the table.					
n	One-tailed, $\alpha = 0.05$	$\alpha = 0.025$	$\alpha = 0.01$	$\alpha = 0.005$	
	Two-tailed, $\alpha = 0.10$	$\alpha = 0.05$	$\alpha = 0.02$	$\alpha = 0.01$	
5	1				
6	2	1			
7	4	2	0		
8	6	4	2	0	
9	8	6	3	2	
10	11	8	5	3	
11	14	11	7	5	
12	17	14	10	7	
13	21	17	13	10	
14	26	21	16	13	
15	30	25	20	16	
16	36	30	24	19	
17	41	35	28	23	
18	47	40	33	28	
19	54	46	38	32	
20	60	52	43	37	
21	68	59	49	43	
22	75	66	56	49	
23	83	73	62	55	
24	92	81	69	61	
25	101	90	77	68	
26	110	98	85	76	
27	120	107	93	84	
28	130	117	102	92	
29	141	127	111	100	
30	152	137	120	109	

Source: From *Some Rapid Approximate Statistical Procedures*, Copyright 1949, 1964 Lederle Laboratories, American Cyanamid Co., Wayne, N.J. Reprinted with permission.

Table L		Critical Values for the Rank Correlation Coefficient			
Reject $H_0: \rho = 0$ if the absolute value of r_s is greater than the value given in the table.					
n	$\alpha = 0.10$	$\alpha = 0.05$	$\alpha = 0.02$	$\alpha = 0.01$	
5	0.900	—	—	—	
6	0.829	0.886	0.943	—	
7	0.714	0.786	0.893	0.929	
8	0.643	0.738	0.833	0.881	
9	0.600	0.700	0.783	0.833	
10	0.564	0.648	0.745	0.794	
11	0.536	0.618	0.709	0.818	
12	0.497	0.591	0.703	0.780	
13	0.475	0.566	0.673	0.745	
14	0.457	0.545	0.646	0.716	
15	0.441	0.525	0.623	0.689	
16	0.425	0.507	0.601	0.666	
17	0.412	0.490	0.582	0.645	
18	0.399	0.476	0.564	0.625	
19	0.388	0.462	0.549	0.608	
20	0.377	0.450	0.534	0.591	
21	0.368	0.438	0.521	0.576	
22	0.359	0.428	0.508	0.562	
23	0.351	0.418	0.496	0.549	
24	0.343	0.409	0.485	0.537	
25	0.336	0.400	0.475	0.526	
26	0.329	0.392	0.465	0.515	
27	0.323	0.385	0.456	0.505	
28	0.317	0.377	0.448	0.496	
29	0.311	0.370	0.440	0.487	
30	0.305	0.364	0.432	0.478	

Source: From N. L. Johnson and F. C. Leone, *Statistical and Experimental Design*, vol. I (1964), p. 412. Reprinted with permission from the Institute of Mathematical Statistics.

Table M Critical Values for the Number of Runs

This table gives the critical values at $\alpha = 0.05$ for a two-tailed test. Reject the null hypothesis if the number of runs is less than or equal to the smaller value or greater than or equal to the larger value.

Value of n_1	Value of n_2																		
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
2	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2
	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
3	1	1	1	1	2	2	2	2	2	2	2	2	2	3	3	3	3	3	3
	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
4	1	1	1	2	2	2	3	3	3	3	3	3	3	3	4	4	4	4	4
	6	8	9	9	9	10	10	10	10	10	10	10	10	10	10	10	10	10	10
5	1	1	2	2	3	3	3	3	3	4	4	4	4	4	4	4	5	5	5
	6	8	9	10	10	11	11	12	12	12	12	12	12	12	12	12	12	12	12
6	1	2	2	3	3	3	3	4	4	4	4	5	5	5	5	5	5	6	6
	6	8	9	10	11	12	12	13	13	13	13	14	14	14	14	14	14	14	14
7	1	2	2	3	3	3	4	4	5	5	5	5	5	6	6	6	6	6	6
	6	8	10	11	12	13	13	14	14	14	14	15	15	15	16	16	16	16	16
8	1	2	3	3	3	4	4	5	5	5	6	6	6	6	6	7	7	7	7
	6	8	10	11	12	13	14	14	15	15	16	16	16	16	17	17	17	17	17
9	1	2	3	3	4	4	5	5	5	6	6	6	7	7	7	7	8	8	8
	6	8	10	12	13	14	14	15	16	16	16	17	17	18	18	18	18	18	18
10	1	2	3	3	4	5	5	5	6	6	7	7	7	7	8	8	8	8	9
	6	8	10	12	13	14	15	16	16	17	17	18	18	18	19	19	19	19	20
11	1	2	3	4	4	5	5	6	6	7	7	7	8	8	8	9	9	9	9
	6	8	10	12	13	14	15	16	17	17	18	19	19	19	20	20	20	21	21
12	2	2	3	4	4	5	6	6	7	7	7	8	8	8	9	9	9	10	10
	6	8	10	12	13	14	16	16	17	18	19	19	20	20	21	21	21	22	22
13	2	2	3	4	5	5	6	6	7	7	8	8	9	9	9	10	10	10	10
	6	8	10	12	14	15	16	17	18	19	19	20	20	21	21	22	22	23	23
14	2	2	3	4	5	5	6	7	7	8	8	9	9	9	10	10	10	11	11
	6	8	10	12	14	15	16	17	18	19	20	20	21	22	22	23	23	23	24
15	2	3	3	4	5	6	6	7	7	8	8	9	9	10	10	11	11	11	12
	6	8	10	12	14	15	16	18	18	19	20	21	22	22	23	23	24	24	25
16	2	3	4	4	5	6	6	7	8	8	9	9	10	10	11	11	11	12	12
	6	8	10	12	14	16	17	18	19	20	21	21	22	23	23	24	25	25	25
17	2	3	4	4	5	6	7	7	8	9	9	10	10	11	11	11	12	12	13
	6	8	10	12	14	16	17	18	19	20	21	22	23	23	24	25	25	26	26
18	2	3	4	5	5	6	7	8	8	9	9	10	10	11	11	12	12	13	13
	6	8	10	12	14	16	17	18	19	20	21	22	23	24	25	25	26	26	27
19	2	3	4	5	6	6	7	8	8	9	10	10	11	11	12	12	13	13	13
	6	8	10	12	14	16	17	18	20	21	22	23	23	24	25	26	26	27	27
20	2	3	4	5	6	6	7	8	9	9	10	10	11	12	12	13	13	13	14
	6	8	10	12	14	16	17	18	20	21	22	23	24	25	25	26	27	27	28

Source: Adapted from C. Eisenhardt and F. Swed, "Tables for Testing Randomness of Grouping in a Sequence of Alternatives," *The Annals of Statistics*, vol. 14 (1943), pp. 83–86. Reprinted with permission of the Institute of Mathematical Statistics and of the Benjamin/Cummings Publishing Company, in whose publication, *Elementary Statistics*, 3rd ed. (1989), by Mario F. Triola, this table appears.

Table W Critical Values for the Tukey Test

		$\alpha = 0.01$																		
$\frac{k}{p}$		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	90.03	135.0	164.3	185.6	202.2	215.8	227.2	237.0	245.6	253.2	260.0	266.2	271.8	277.0	281.8	286.3	290.4	294.3	298.0	
2	14.04	19.02	22.29	24.72	26.63	28.20	29.53	30.68	31.69	32.59	33.40	34.13	34.81	35.43	36.00	36.53	37.03	37.50	37.95	
3	8.26	10.62	12.17	13.33	14.24	15.00	15.64	16.20	16.69	17.13	17.53	17.89	18.22	18.52	18.81	19.07	19.32	19.55	19.77	
4	6.51	8.12	9.17	9.96	10.58	11.10	11.55	11.93	12.27	12.57	12.84	13.09	13.32	13.53	13.73	13.91	14.08	14.24	14.40	
5	5.70	6.98	7.80	8.42	8.91	9.32	9.67	9.97	10.24	10.48	10.70	10.89	11.08	11.24	11.40	11.55	11.68	11.81	11.93	
6	5.24	6.33	7.03	7.56	7.97	8.32	8.61	8.87	9.10	9.30	9.48	9.65	9.81	9.95	10.08	10.21	10.32	10.43	10.54	
7	4.95	5.92	6.54	7.01	7.37	7.68	7.94	8.17	8.37	8.55	8.71	8.86	9.00	9.12	9.24	9.35	9.46	9.55	9.65	
8	4.75	5.64	6.20	6.62	6.96	7.24	7.47	7.68	7.86	8.03	8.18	8.31	8.44	8.55	8.66	8.76	8.85	8.94	9.03	
9	4.60	5.43	5.96	6.35	6.66	6.91	7.13	7.33	7.49	7.65	7.78	7.91	8.03	8.13	8.23	8.33	8.41	8.49	8.57	
10	4.48	5.27	5.77	6.14	6.43	6.67	6.87	7.05	7.21	7.36	7.49	7.60	7.71	7.81	7.91	7.99	8.08	8.15	8.23	
11	4.39	5.15	5.62	5.97	6.25	6.48	6.67	6.84	6.99	7.13	7.25	7.36	7.46	7.56	7.65	7.73	7.81	7.88	7.95	
12	4.32	5.05	5.50	5.84	6.10	6.32	6.51	6.67	6.81	6.94	7.06	7.17	7.26	7.36	7.44	7.52	7.59	7.66	7.73	
13	4.26	4.96	5.40	5.73	5.98	6.19	6.37	6.53	6.67	6.79	6.90	7.01	7.10	7.19	7.27	7.35	7.42	7.48	7.55	
14	4.21	4.89	5.32	5.63	5.88	6.08	6.26	6.41	6.54	6.66	6.77	6.87	6.96	7.05	7.13	7.20	7.27	7.33	7.39	
15	4.17	4.84	5.25	5.56	5.80	5.99	6.16	6.31	6.44	6.55	6.66	6.76	6.84	6.93	7.00	7.07	7.14	7.20	7.26	
16	4.13	4.79	5.19	5.49	5.72	5.92	6.08	6.22	6.35	6.46	6.56	6.66	6.74	6.82	6.90	6.97	7.03	7.09	7.15	
17	4.10	4.74	5.14	5.43	5.66	5.85	6.01	6.15	6.27	6.38	6.48	6.57	6.66	6.73	6.81	6.87	6.94	7.00	7.05	
18	4.07	4.70	5.09	5.38	5.60	5.79	5.94	6.08	6.20	6.31	6.41	6.50	6.58	6.65	6.73	6.79	6.85	6.91	6.97	
19	4.05	4.67	5.05	5.33	5.55	5.73	5.89	6.02	6.14	6.25	6.34	6.43	6.51	6.58	6.65	6.72	6.78	6.84	6.89	
20	4.02	4.64	5.02	5.29	5.51	5.69	5.84	5.97	6.09	6.19	6.28	6.37	6.45	6.52	6.59	6.65	6.71	6.77	6.82	
24	3.96	4.55	4.91	5.17	5.37	5.54	5.69	5.81	5.92	6.02	6.11	6.19	6.26	6.33	6.39	6.45	6.51	6.56	6.61	
30	3.89	4.45	4.80	5.05	5.24	5.40	5.54	5.65	5.76	5.85	5.93	6.01	6.08	6.14	6.20	6.26	6.31	6.36	6.41	
40	3.82	4.37	4.70	4.93	5.11	5.26	5.39	5.50	5.60	5.69	5.76	5.83	5.90	5.96	6.02	6.07	6.12	6.16	6.21	
60	3.76	4.28	4.59	4.82	4.99	5.13	5.25	5.36	5.45	5.53	5.60	5.67	5.73	5.78	5.84	5.89	5.93	5.97	6.01	
120	3.70	4.20	4.50	4.71	4.87	5.01	5.12	5.21	5.30	5.37	5.44	5.50	5.56	5.61	5.66	5.71	5.75	5.79	5.83	
∞	3.64	4.12	4.40	4.60	4.76	4.88	4.99	5.08	5.16	5.23	5.29	5.35	5.40	5.45	5.49	5.54	5.57	5.61	5.65	

Table N
(continued)

$\frac{k}{\nu}$	$\alpha = 0.05$																			
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
1	17.97	26.98	32.82	37.08	40.41	43.12	45.40	47.36	49.07	50.59	51.96	53.20	54.33	55.36	56.32	57.22	58.04	58.83	59.56	
2	6.08	8.33	9.80	10.88	11.74	12.44	13.03	13.54	13.99	14.39	14.75	15.08	15.38	15.65	15.91	16.14	16.37	16.57	16.77	
3	4.50	5.91	6.82	7.50	8.04	8.48	8.85	9.18	9.46	9.72	9.95	10.15	10.35	10.53	10.69	10.84	10.98	11.11	11.24	
4	3.93	5.04	5.76	6.29	6.71	7.05	7.35	7.60	7.83	8.03	8.21	8.37	8.52	8.66	8.79	8.91	9.03	9.13	9.23	
5	3.64	4.60	5.22	5.67	6.03	6.33	6.58	6.80	6.99	7.17	7.32	7.47	7.60	7.72	7.83	7.93	8.03	8.12	8.21	
6	3.46	4.34	4.90	5.30	5.63	5.90	6.12	6.32	6.49	6.65	6.79	6.92	7.03	7.14	7.24	7.34	7.43	7.51	7.59	
7	3.34	4.16	4.68	5.06	5.36	5.61	5.82	6.00	6.16	6.30	6.43	6.55	6.66	6.76	6.85	6.94	7.02	7.10	7.17	
8	3.26	4.04	4.53	4.89	5.17	5.40	5.60	5.77	5.92	6.05	6.18	6.29	6.39	6.48	6.57	6.65	6.73	6.80	6.87	
9	3.20	3.95	4.41	4.76	5.02	5.24	5.43	5.59	5.74	5.87	5.98	6.09	6.19	6.28	6.36	6.44	6.51	6.58	6.64	
10	3.15	3.88	4.33	4.65	4.91	5.12	5.30	5.46	5.60	5.72	5.83	5.93	6.03	6.11	6.19	6.27	6.34	6.40	6.47	
11	3.11	3.82	4.26	4.57	4.82	5.03	5.20	5.35	5.49	5.61	5.71	5.81	5.90	5.98	6.06	6.13	6.20	6.27	6.33	
12	3.08	3.77	4.20	4.51	4.75	4.95	5.12	5.27	5.39	5.51	5.61	5.71	5.80	5.88	5.95	6.02	6.09	6.15	6.21	
13	3.06	3.73	4.15	4.45	4.69	4.88	5.05	5.19	5.32	5.43	5.53	5.63	5.71	5.79	5.86	5.93	5.99	6.05	6.11	
14	3.03	3.70	4.11	4.41	4.64	4.83	4.99	5.13	5.25	5.36	5.46	5.55	5.64	5.71	5.79	5.85	5.91	5.97	6.03	
15	3.01	3.67	4.08	4.37	4.59	4.78	4.94	5.08	5.20	5.31	5.40	5.49	5.57	5.65	5.72	5.78	5.85	5.90	5.96	
16	3.00	3.65	4.05	4.33	4.56	4.74	4.90	5.03	5.15	5.26	5.35	5.44	5.52	5.59	5.66	5.73	5.79	5.84	5.90	
17	2.98	3.63	4.02	4.30	4.52	4.70	4.86	4.99	5.11	5.21	5.31	5.39	5.47	5.54	5.61	5.67	5.73	5.79	5.84	
18	2.97	3.61	4.00	4.28	4.49	4.67	4.82	4.96	5.07	5.17	5.27	5.35	5.43	5.50	5.57	5.63	5.69	5.74	5.79	
19	2.96	3.59	3.98	4.25	4.47	4.65	4.79	4.92	5.04	5.14	5.23	5.31	5.39	5.46	5.53	5.59	5.65	5.70	5.75	
20	2.95	3.58	3.96	4.23	4.45	4.62	4.77	4.90	5.01	5.11	5.20	5.28	5.36	5.43	5.49	5.55	5.61	5.66	5.71	
24	2.92	3.53	3.90	4.17	4.37	4.54	4.68	4.81	4.92	5.01	5.10	5.18	5.25	5.32	5.38	5.44	5.49	5.55	5.59	
30	2.89	3.49	3.85	4.10	4.30	4.46	4.60	4.72	4.82	4.92	5.00	5.08	5.15	5.21	5.27	5.33	5.38	5.43	5.47	
40	2.86	3.44	3.79	4.04	4.23	4.39	4.52	4.63	4.73	4.82	4.90	4.98	5.04	5.11	5.16	5.22	5.27	5.31	5.36	
60	2.83	3.40	3.74	3.98	4.16	4.31	4.44	4.55	4.65	4.73	4.81	4.88	4.94	5.00	5.06	5.11	5.15	5.20	5.24	
120	2.80	3.36	3.68	3.92	4.10	4.24	4.36	4.47	4.56	4.64	4.71	4.78	4.84	4.90	4.95	5.00	5.04	5.09	5.13	
∞	2.77	3.31	3.63	3.86	4.03	4.17	4.29	4.39	4.47	4.55	4.62	4.68	4.74	4.80	4.85	4.89	4.93	4.97	5.01	

Table IV (concluded)

$\alpha = 0.10$

$k \backslash v$	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	8.93	13.44	16.36	18.49	20.15	21.51	22.64	23.62	24.48	25.24	25.92	26.54	27.10	27.62	28.10	28.54	28.96	29.35	29.71
2	4.13	5.73	6.77	7.54	8.14	8.63	9.05	9.41	9.72	10.01	10.26	10.49	10.70	10.89	11.07	11.24	11.39	11.54	11.68
3	3.33	4.47	5.20	5.74	6.16	6.51	6.81	7.06	7.29	7.49	7.67	7.83	7.98	8.12	8.25	8.37	8.48	8.58	8.68
4	3.01	3.98	4.59	5.03	5.39	5.68	5.93	6.14	6.33	6.49	6.65	6.78	6.91	7.02	7.13	7.23	7.33	7.41	7.50
5	2.85	3.72	4.26	4.66	4.98	5.24	5.46	5.65	5.82	5.97	6.10	6.22	6.34	6.44	6.54	6.63	6.71	6.79	6.86
6	2.75	3.56	4.07	4.44	4.73	4.97	5.17	5.34	5.50	5.64	5.76	5.87	5.98	6.07	6.16	6.25	6.32	6.40	6.47
7	2.68	3.45	3.93	4.28	4.55	4.78	4.97	5.14	5.28	5.41	5.53	5.64	5.74	5.83	5.91	5.99	6.06	6.13	6.19
8	2.63	3.37	3.83	4.17	4.43	4.65	4.83	4.99	5.13	5.25	5.36	5.46	5.56	5.64	5.72	5.80	5.87	5.93	6.00
9	2.59	3.32	3.76	4.08	4.34	4.54	4.72	4.87	5.01	5.13	5.23	5.33	5.42	5.51	5.58	5.66	5.72	5.79	5.85
10	2.56	3.27	3.70	4.02	4.26	4.47	4.64	4.78	4.91	5.03	5.13	5.23	5.32	5.40	5.47	5.54	5.61	5.67	5.73
11	2.54	3.23	3.66	3.96	4.20	4.40	4.57	4.71	4.84	4.95	5.05	5.15	5.23	5.31	5.38	5.45	5.51	5.57	5.63
12	2.52	3.20	3.62	3.92	4.16	4.35	4.51	4.65	4.78	4.89	4.99	5.08	5.16	5.24	5.31	5.37	5.44	5.49	5.55
13	2.50	3.18	3.59	3.88	4.12	4.30	4.46	4.60	4.72	4.83	4.93	5.02	5.10	5.18	5.25	5.31	5.37	5.43	5.48
14	2.49	3.16	3.56	3.85	4.08	4.27	4.42	4.56	4.68	4.79	4.88	4.97	5.05	5.12	5.19	5.26	5.32	5.37	5.43
15	2.48	3.14	3.54	3.83	4.05	4.23	4.39	4.52	4.64	4.75	4.84	4.93	5.01	5.08	5.15	5.21	5.27	5.32	5.38
16	2.47	3.12	3.52	3.80	4.03	4.21	4.36	4.49	4.61	4.71	4.81	4.89	4.97	5.04	5.11	5.17	5.23	5.28	5.33
17	2.46	3.11	3.50	3.78	4.00	4.18	4.33	4.46	4.58	4.68	4.77	4.86	4.93	5.01	5.07	5.13	5.19	5.24	5.30
18	2.45	3.10	3.49	3.77	3.98	4.16	4.31	4.44	4.55	4.65	4.75	4.83	4.90	4.98	5.04	5.10	5.16	5.21	5.26
19	2.45	3.09	3.47	3.75	3.97	4.14	4.29	4.42	4.53	4.63	4.72	4.80	4.88	4.95	5.01	5.07	5.13	5.18	5.23
20	2.44	3.08	3.46	3.74	3.95	4.12	4.27	4.40	4.51	4.61	4.70	4.78	4.85	4.92	4.99	5.05	5.10	5.16	5.20
24	2.42	3.05	3.42	3.69	3.90	4.07	4.21	4.34	4.44	4.54	4.63	4.71	4.78	4.85	4.91	4.97	5.02	5.07	5.12
30	2.40	3.02	3.39	3.65	3.85	4.02	4.16	4.28	4.38	4.47	4.56	4.64	4.71	4.77	4.83	4.89	4.94	4.99	5.03
40	2.38	2.99	3.35	3.60	3.80	3.96	4.10	4.21	4.32	4.41	4.49	4.56	4.63	4.69	4.75	4.81	4.86	4.90	4.95
60	2.36	2.96	3.31	3.56	3.75	3.91	4.04	4.16	4.25	4.34	4.42	4.49	4.56	4.62	4.67	4.73	4.78	4.82	4.86
120	2.34	2.93	3.28	3.52	3.71	3.86	3.99	4.10	4.19	4.28	4.35	4.42	4.48	4.54	4.60	4.65	4.69	4.74	4.78
∞	2.33	2.90	3.24	3.48	3.66	3.81	3.93	4.04	4.13	4.21	4.28	4.35	4.41	4.47	4.52	4.57	4.61	4.65	4.69

Source: "Tables of Range and Studentized Range," *Annals of Mathematical Statistics*, vol. 31, no. 4. Reprinted with permission of the Institute of Mathematical Sciences.